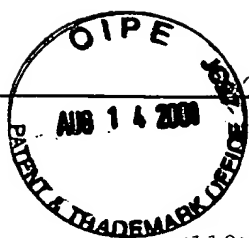


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<213> Tomato spotted wilt virus

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<211> 32

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<223> Description of Artificial Sequence: primer

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<212> DNA

<213> Tomato spotted wilt virus

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<210> 6

<211> 1709

<212> DNA

<213> Tomato spotted wilt virus

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<210> 7

<211> 260

<212> PRT

<213> Tomato spotted wilt virus

<400> 7

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Thr Asp Ser His Phe Lys Leu Ser Leu Trp Leu Arg Val Pro Lys Val
 35 40 45

Leu Lys Gln Val Ser Ile Gln Lys Leu Phe Lys Val Ala Gly Asp Glu
 50 55 60

Thr Asn Lys Thr Phe Tyr Leu Ser Ile Ala Cys Ile Pro Asn His Asn
 65 70 75 80

Ser Val Glu Thr Ala Leu Asn Ile Thr Val Ile Cys Lys His Gln Leu
 85 90 95

Pro Ile Arg Lys Cys Lys Ala Pro Phe Glu Leu Ser Met Met Phe Ser
 100 105 110

Asp Leu Lys Glu Pro Tyr Asn Ile Val His Asp Pro Ser Tyr Pro Lys
 115 120 125

Gly Ser Val Pro Met Leu Trp Leu Glu Thr His Thr Ser Leu His Lys
 130 135 140

Phe Phe Ala Thr Asn Leu Gln Glu Asp Val Ile Ile Tyr Thr Leu Asn
 145 150 155 160

Asn Leu Glu Leu Thr Pro Gly Lys Leu Asp Leu Gly Glu Arg Thr Leu
 165 170 175

Asn Tyr Ser Glu Asp Ala Tyr Lys Arg Lys Tyr Phe Leu Ser Lys Thr


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<211> 21

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: primer

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<210> 11

<211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: primer

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<210> 12
 <211> 467
 <212> PRT
 <213> Tomato spotted wilt virus

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Tyr Glu Phe Pro Thr Gly Ser Pro Leu Val Gln Thr Gln Leu Tyr Ser
 35 40 45

Asp Ser Arg Ser Lys Ser Ser Phe Gly Tyr Thr Ser Lys Ile Gly Asp
 50 55 60

Ile Pro Ala Val Glu Glu Glu Ile Leu Ser Gln Asn Val His Ile Pro
 65 70 75 80

Val Phe Asp Asp Ile Asp Phe Ser Ile Asn Ile Asn Asp Ser Phe Leu
 85 90 95

Ala Ile Ser Val Cys Ser Asn Thr Val Asn Thr Asn Gly Val Lys His
 100 105 110

Gln Gly His Leu Lys Val Leu Ser Leu Ala Gln Leu His Pro Phe Glu
 115 120 125

Pro Val Met Ser Arg Ser Glu Ile Ala Ser Arg Phe Arg Leu Gln Glu
 130 135 140

Glu Asp Ile Ile Pro Asp Asp Lys Tyr Ile Ser Ala Ala Asn Lys Gly
 145 150 155 160

Ser Leu Ser Cys Val Lys Glu His Thr Tyr Lys Val Glu Met Ser His

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Asn Gln Ala Leu Gly Lys Val Asn Val Leu Ser Pro Asn Arg Asn Val	180		185		190
His Glu Trp Leu Tyr Ser Phe Lys Pro Asn Phe Asn Gln Ile Glu Ser	195		200		205
Asn Asn Arg Thr Val Asn Ser Leu Ala Val Lys Ser Leu Leu Met Ala	210		215		220
Thr Glu Asn Asn Ile Met Pro Asn Ser Gln Ala Phe Val Lys Ala Ser	225		230		235
Thr Asp Ser His Phe Lys Leu Ser Leu Trp Leu Arg Ile Pro Lys Val	245		250		255
Leu Lys Gln Ile Ala Ile Gln Lys Leu Phe Lys Phe Ala Gly Asp Glu	260		265		270
Thr Gly Lys Ser Phe Tyr Leu Ser Ile Ala Cys Ile Pro Asn His Asn	275		280		285
Ser Val Glu Thr Ala Leu Asn Val Thr Val Ile Cys Arg His Gln Leu	290		295		300
Pro Ile Pro Lys Ser Lys Ala Pro Phe Glu Leu Ser Met Ile Phe Ser	305		310		315
Asp Leu Lys Glu Pro Tyr Asn Thr Val His Asp Pro Ser Tyr Pro Gln	325		330		335
Arg Ile Val His Ala Leu Leu Glu Thr His Thr Ser Phe Ala Gln Val	340		345		350
Leu Cys Asn Lys Leu Gln Glu Asp Val Ile Ile Tyr Thr Ile Asn Ser	355		360		365
Pro Glu Leu Thr Pro Ala Lys Leu Asp Leu Gly Glu Arg Thr Leu Asn	370		375		380
Tyr Ser Glu Asp Ala Ser Lys Lys Lys Tyr Phe Leu Ser Lys Thr Leu	385		390		395
Glu Cys Leu Pro Val Asn Val Gln Thr Met Ser Tyr Leu Asp Ser Ile	405		410		415
Gln Ile Pro Ser Trp Lys Ile Asp Phe Ala Arg Gly Glu Ile Arg Ile					

420 425 430
 Ser Pro Gln Ser Thr Pro Ile Ala Arg Ser Leu Leu Lys Leu Asp Leu
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 Ser Lys Ile Lys Glu Lys Lys Ser Leu Thr Trp Glu Thr Ser Ser Tyr
 450 455 460
 Asp Leu Glu
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<210> 13
 <211> 258
 <212> PRT

<213> Tomato Spotted Wilt Virus (Brazil isolate)

<400> 13

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 Ser Ile Thr Ser Cys Leu Thr Phe Leu Lys Asn Arg Gln Gly Ile Met
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 Lys Val Val Asn Gln Ser Asp Phe Thr Phe Gly Lys Val Thr Ile Lys
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Val Cys Thr Val Leu Lys Ser Lys Gly Phe Thr Met Asp Asp Ala Gln
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Ile Asn Lys Gly Lys Glu Tyr Ala Lys Ile Leu Ser Ser Cys Asn Pro
210 215 220

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<210> 14

<211> 3049

<212> DNA

<213> Tomato Spotted Wilt Virus (Brazil isolate)

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<210> 15

<211> 777

<212> DNA

<213> Tomato Spotted Wilt Virus (Brazil isolate)

<400> 15

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aagtatcttg	gcatattctt	tccctttggt	tatctgtgca	tcatccattg	taaatccttt	180
gcttttaagc	actgtgcaaa	ccttccccag	agcttccctta	gtgttgtagt	tagttgggtc	240
aatccctaac	tccttgtagt	ttgcatcttg	atatatggca	agaacaacac	tgatcatctc	300
gaagctgtca	acagaagcaa	tgagagggat	actacctcca	agcattatag	caagtctcac	360
agattttgca	tctgccagag	gcagcccgtg	agcttggacc	aaaggggtgg	aggcaatttt	420
tgctttgata	atagcaagat	tctcattggt	tgcagtctct	tctatgagct	tcactcttat	480
catgctatca	agcctcctga	aagtcatatc	cttagctcca	actctttcag	aatttttctt	540

tatcgtgacc ttaccaaaaag taaaatcaact ttgggttcaca actttcataa tgccttgggc 600
attcttcaag aaagtcaaac atgaagtgat actcattttc ttaatcaggt caagattttc 660
ctgacagaaa gtcttaaagt tgaatgcgac ctggttctgg tcttcttcaa actcaacatc 720
tgcagattga gttaaaagag agacaatgtt ttcttttgtg agcttgacct tagacat 777

<210> 16
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 16
gttctgagat ttgctagt 18

<210> 17
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 17
ttatatcttc ttcttgga 18

<210> 18
<211> 1401
<212> DNA
<213> Tomato spotted wilt virus

<400> 18
atgtcatcag gtgtttatga atcgatcatt cagacaaaag cttcagtttg gggatcgaca 60
gcatctggta agtccatcgt ggattcttac tggatttatg agtttccaac tggttctcca 120
ctggttcaaa ctcagttgta ctctgattcg aggagcaaaa gtagcttcgg ctacacttca 180
aaaattgggtg atattcctgc tgtagaggag gaaattttat ctgagaacgt tcatatccca 240
gtgtttgatg atattgattt cagcatcaat atcaatgatt ctttcttgge aatttctgtt 300
tgttccaaca cagttaacac caatggagtg aagcatcagg gtcactttaa agttctttct 360
cttgcccaat tgcacccctt tgaacctgtg atgagcaggt cagagattgc tagcagattc 420
cggctccaag aagaagatat aattcctgat gacaaatata tatctgctgc taacaaggga 480
tctctctcct gtgtcaaaga acatacttac aaagtcgaaa tgagccacaa tcaggcttta 540
ggcaaagtga atgttctttc tctaacaga aatgttcatg agtggctgta tagtttcaaa 600
ccaaatttca accagatcga aagtaataac agaactgtaa attctcttgc agtcaaactc 660
ttgctcatgg ctacagaaaa caacattatg cctaactctc aagcttttgt taaagcttct 720

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actgattctc attttaagtt gagccttttg ctgagaattc caaaagtttt gaagcaaata 780
gccatacaga agctcttcaa gtttgaggga gacgaaaccg gtaaaagttt ctatttgtct 840
attgcatgca tcccaaatca caacagtgtg gaaacagctt taaatgtcac tggtatatgt 900
agacatcagc ttccaatccc taagtccaaa gctccttttg aattatcaat gattttctcc 960
gatctgaaag agccttacia cactgtgcat gatccttcat atcctcaaag gattgttcat 1020
gctttgcttg agactcacac ttcctttgca caagttctct gcaacaagct gcaagaagat 1080
gtgatcatat atactataaa cagccctgaa ctaacccag ctaagctgga tctaggtgaa 1140
agaaccttga actacagtga agatgcttcg aagaagaagt attttctttc aaaaacactc 1200
gaatgcttgc cagtaaagtgt gcagactatg tcttattttg atagcatcca gattccttca 1260
tggaagatag actttgccag aggagagatc agaatctccc ctcaatctac tcctattgca 1320
agatctttgc tcaagctgga tttgagcaag atcaaggaaa agaagtcctt gacttgggaa 1380
acatccagct atgatctaga a                                     1401

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<210> 19

<211> 777

<212> DNA

<213> Tomato spotted wilt virus

<400> 19

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atgtctaagg tcaagctcac aaaagaaaac attgtctctc ttttaactca atctgcagat 60
gttgagtttg aagaagacca gaaccaggtc gcattcaact ttaagacttt ctgtcaggaa 120
aatcttgacc tgattaagaa aatgagtatc acttcatggt tgactttctt gaagaatcgc 180
caaggcatta tgaaagtgtg gaaccaaagt gattttactt ttggtaaggc cacgataaag 240
aaaaattctg aaagagtttg agctaaggat atgactttca ggaggcttga tagcatgata 300
agagtgaagc tcatagaaga gactgcaaac aatgagaatc ttgctattat caaagcaaaa 360
attgcctccc acccttttgt ccaagcttac gggctgcctc tggcagatgc aaaatctgtg 420
agacttgcta taatgcttgg aggtagtatc cctctcattg cttctgttga cagcttcgag 480
atgatcagtg ttgttcttgc catatatcaa gatgcaaagt acaaggagtt agggattgaa 540
ccaactaagt acaacactaa ggaagctctg gggaagggtt gcacagtgtc taaaagcaaa 600
ggatttacia tggatgatgc acagataaac aaagggaaag aatatgcaa gatacttagt 660
tcttgcaatc ccaatgctaa gggaagcatt gctatggact attacagtga taatcttgac 720
aaattctatg aatgttttg agttaagaaa gaggccaaga ttgctggtgt tgcataa 777

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<210> 20

<211> 40

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 20

tacttatcta gaaccatgga caaagcaaag attaccaagg

40

<210> 21

<211> 42
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 21
 tacagtggat ccatgggttat ttcaaataat ttataaaagc ac 42

 <210> 22
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 22
 agcattggat ccatgggtaa cacactaagc aagcac 36

 <210> 23
 <211> 46
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 23
 agctaatacta gaaccatgga tgactcacta aggaaagcat tgttgc 46

 <210> 24
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 24
 cccactatcc ttcgcaagac cc 22

 <210> 25

<211> 39
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 25
tacagtggat ccatgggtaa ggtaatccat aggcttgac

39

<210> 26
<211> 40
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 26
agctaaccat ggtaagctc actaaggaaa gcattgttgc

40

<210> 27
<211> 46
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 27
agctaacta gaaccatgga tgactcacta aggaaagcat tgttgc

46

<210> 28
<211> 36
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 28
agcattggat ccatgggtaa cacactaagc aagcac

36

<210> 29

<211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 29
 tacagttcta gaaccatgga tgatgcaaag tctgtgagg 39

 <210> 30
 <211> 49
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 30
 agattctcta gaccatggtg acttgatgag caaagtctgt gaggcttgc 49

 <210> 31
 <211> 42
 <212> DNA
 <213> Tomato spotted wilt virus

 <400> 31
 atggttaagc tcactaagga aagcattggt gctttgttga ca 42

 <210> 32
 <211> 41
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: 5' terminal
 sequence of untranslatable, mutated nucleocapsid
 DNA

 <400> 32
 atggatgact cactaaggaa agcattgttg ctttgttgac a 41

 <210> 33
 <211> 40

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: 5' terminal
sequence of untranslatable, mutated nucleocapsid
DNA

<400> 33

atggatgact cactaaggaa agcattgttg ctttgtgaca

40

<210> 34

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: 5' terminal
sequence of DNA encoding approximately the
C-terminal half of the tomato spotted wilt virus
nucleocapsid protein

<400> 34

atggatgatg caaagtctgt gaggcttgcc ataatg

36

<210> 35

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: 5' terminal
sequence of untranslatable, mutated nucleocapsid
DNA

<400> 35

atggtgactt gatgagcaaa gtctgtgagg cttgccataa tg

42